Symmetry violation in weak decays

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Stellingen

behorende bij het proefschrift

Symmetry violation in weak decays

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1. Searches for new physics in nuclear-β-decay experiments should focus on improving the current bounds on left-handed scalar and tensor interactions.

2. The strong constraints from electric dipole moments on new CP-violating dimension-6 operators obviate the need for searches for T violation in (radiative) β decay.

3. Effective-field-theory methods are indispensable in the search for new high-energy physics, because they quantify the connection between different (high- and low-energy) observables in a model-independent way. This gives insights in which observables are more beneficial to pursue.

4. Current discrepancies between the measurements and determinations of Standard Model parameters, such as the neutron lifetime, the β-asymmetry of the neutron and V_{us}, need to be resolved urgently because they limit searches for new physics.

5. The search for Lorentz-symmetry breaking in the weak interaction should be further pursued, because so far the more natural dimension-5 and dimension-6 operators remain mostly unconstrained.

6. The university should make it a priority to reduce the delay of more than 3.5 months between the approval of the Ph.D. thesis and its actual defense.